ET-92 October 1936

United States Department of Agriculture
Bureau of Entomology and Plant Quarantine

A PRESSURE SPRAYER FOR HANDLING SMALL QUANTITIES OF MATERIAL

By George W. Barber, Division of Cereal and Forage
Insect Investigations

In studying the action of series of sprays, it is often desirable, from the standpoint of convenience or for the conservation of materials, to handle such sprays in small quantities, such as 500 cc, 100 cc, a pint, or a quart. Under these circumstances the usual knapsack pressure sprayers, holding from 2 to 5 gallons, are much too large, while the alternate equipment available, the common hand sprayers, do not give sufficient pressure or are inconvenient, besides requiring constant pumping. In order to obtain a pressure sprayer for use in handling small lots of material, a sprayer was assembled which fills these needs admirably. This is, in effect, a miniature knapsack pressure sprayer (fig. 1).

A quart-size cylindrical pressure tank,[1] such as is used to feed gasoline into small camp cook stoves, was obtained. This is 9 inches long by 3 inches wide. There is a small brass air pump at one end to raise the air pressure within the tank so as to feed gasoline into the burners of the stove. The outlet is in the center of the side of the tank. To adapt the tank for spraying equipment, a nipple was threaded into this outlet, and to this a hose bearing the nozzle was attached. Spray material is introduced through the aperture into which the air pump is screwed.

A shoulder strap was attached to the tank, but in use it was found to be more convenient simply to hold it between the left arm and the body, leaving both hands free to manipulate the nozzle and the plants to be sprayed. When the tank is completely pumped up, pressure comparable to that used in a knapsack sprayer can be had; and when 500 cc of material is used, one pumping serves to empty the tank of spray. If it is desired to use a quart or 1,000 cc of material, a 3-pint or a 2-quart tank, such as is used with larger stoves, may be obtained.

A feature of this equipment is the convenience with which the hose and nozzle may be cleaned. After a spraying, the tank, after being rinsed, is half filled with water and pressure is developed. Then, while the tank is being held with the outlet downward, the water is forced through the hose and nozzle until these have been rinsed. The tank is then reversed so that the outlet is directed upward and the hose and nozzle are emptied by the compressed air in the tank.

---

[1] Neely Turner, of the Connecticut Agricultural Experiment Station, suggested the availability of the pressure tank described.

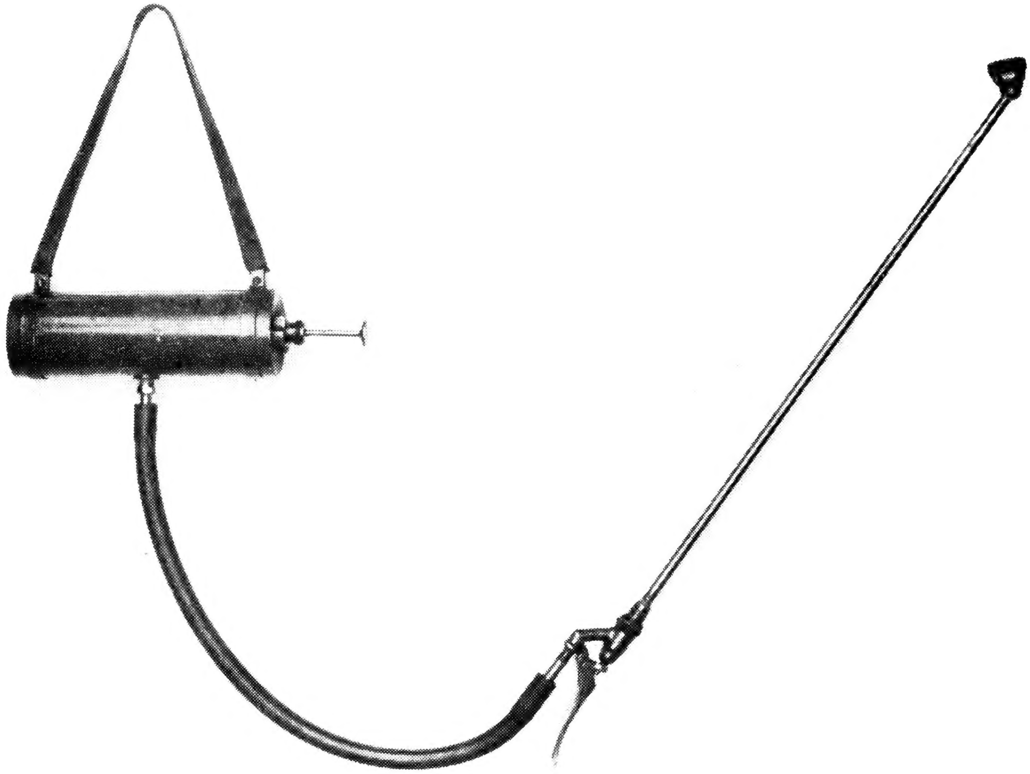

Figure 1.--Pressure spraying equipment for handling small quantities of material.